SPATIAL PRICE INDEXES

Yellowknife — Edmonton

June 1986

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Spatial Price Indexes
Yellowknife-Edmonton, June 1986

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BUREAU OF STATISTICS
GOVERNMENT OF THE NORTHWEST TERRITORIES
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FOREWORD

Estimates of price level differences between Yellowknife and Edmonton for June 1986 were developed based on the results of the June 1982 Yellowknife-Edmonton spatial price survey, and subsequent price changes in each center as measured by the Consumer Price Index. This method yields reliable spatial price information for the major components of consumer expenditure at a considerable cost saving compared to undertaking a survey.

The calculation of June 1986 spatial price estimates was made possible through the co-operation and assistance of Statistics Canada which provided the Consumer Price Index information required to calculate the June 1986 spatial price indexes. Prior to Statistics Canada's extension of the Consumer Price Index to Yellowknife (beginning with March 1982), it was not possible to estimate spatial price differences between Yellowknife and Edmonton, necessitating spatial price surveys to develop this information.

Any questions regarding results or methodology should be directed to:

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INTRODUCTION

Since June 1980, the Bureau of Statistics has prepared spatial price indexes on an annual basis comparing price levels in Yellowknife and Edmonton. For June 1980, 1981 and 1982, Yellowknife-Edmonton spatial price indexes were based on a price survey completed in both cities. For June 1983, 1984, 1985 and 1986 estimation procedures were used to calculate those indexes, incorporating 1982 price level differences and subsequent price movements in each city determined from Statistics Canada's Consumer Price Indexes for Yellowknife and Edmonton.

In this report, price differences between Yellowknife and Edmonton are expressed as index numbers where the index value for Edmonton is set at 100. An index value x points higher (or lower) than 100 indicates a price level x percent higher (or lower) in Yellowknife compared to Edmonton. These index numbers may be interpreted as how much more (or less) an Edmonton household would pay if its consumer expenditures were made at Yellowknife prices.

Index values for June 1986 are calculated by combining price information for consumer items included in various commodity groupings. This averaging procedure reflects the importance of each item for Edmonton household budgets, as determined from Statistics Canada's 1982 Family Expenditure Survey. The relative importance of each commodity, or grouping of commodities, is referred to as its weight and is expressed as a percentage of total household expenditures at June 1986 prices for those consumer goods and services included in the survey.

Consumer items included in the calculation of the Yellowknife-Edmonton spatial price indexes represent about 91 percent of Edmonton household expenditures monitored for Consumer Price Index purposes, measured in dollar terms. Major exclusions are mortgage interest and depreciation on dwellings for which appropriate spatial price comparison methods are not available.

HIGHLIGHTS

For June 1986, it is estimated that consumer prices were on average 36 percent higher in Yellowknife compared to Edmonton. This means that goods and services purchased for $100 in Edmonton cost approximately $136 at Yellowknife prices. The purchasing power of the Edmonton dollar in Yellowknife was therefore about 74 cents.

As indicated in Table 1 below, Yellowknife prices were higher than those in Edmonton for all major components of household expenditure identified in the Consumer Price Index. By far, price differences were the greatest for expenditures related to housing as a whole (index = 161) and to shelter specifically (index = 191). When housing expenditures are excluded, the Yellowknife-Edmonton spatial price index falls to 124. When just the shelter component of housing (rent, insurance, utilities, maintenance and taxes) is excluded, the index is 123.

Prices for transportation, health & personal care and food items were 26 to 28 percent higher in Yellowknife. Price indexes for the remaining categories were less than 124.

Table 1. ESTIMATED PRICE INDEXES AND WEIGHTS, by Major Component
Yellowknife, June 1986

	Weight (%)	Price Index (Edmonton=100)
All Items	100.0	135.5
Food	20.6	128.2
Housing	30.5	161.4
Shelter	19.0	190.5
Clothing	9.1	120.0
Transportation	18.5	126.4
Health & Personal Care	4.1	126.8
Recreation, Reading & Education	10.1	123.8
Tobacco & Alcohol	7.0	109.8
All Items Excluding Housing	69.5	124.1
All Items Excluding Shelter	81.0	122.5

Comparisons with price indexes calculated for earlier years are presented in the following section. Details on methods used to develop June 1986 spatial price indexes are provided in Appendix A. The list of items used to determine the spatial price indexes is provided in Appendix B.

COMPARISONS WITH EARLIER INDEXES

Yellowknife-Edmonton spatial price indexes for major components of consumer expenditure are presented below for 1980 through 1986 along with expenditure weights used in their calculation. (See Tables 2 and 3.)

Care should be taken when comparing these spatial price indexes over time:

- there have been some changes in those items included in the calculation of the overall index and its components.

- the expenditure weighting pattern used for calculating the spatial price indexes has changed over time. The June 1984, June 1985 and June 1986 spatial price indexes are based on Statistics Canada's 1982 Family Expenditure Survey. The 1981, 1982 and 1983 price indexes are based on 1978 expenditure patterns, and the 1980 indexes are based on the 1974 Family Expenditure Survey.

- the results for June 1983 and subsequent years are based on estimation procedures, while the results for prior years were determined directly from surveys. (Methodology for earlier surveys is described in the report Spatial Price Survey, Yellowknife - Edmonton, June 1982, ISSN 0824-8184.)

To indicate the effects of changing the expenditure weights used in calculating spatial price indexes, information for 1984 is presented for both 1982 and 1978 expenditure patterns. As can be seen from Table 2, the overall index increases from 133 when 1978 expenditure patterns are used, to an index value of 135 in the case of 1982 expenditure patterns. As well, indexes vary at the component level due to changing expenditure weights for items within each component.

Table 2 shows that the overall Yellowknife-Edmonton spatial price index has increased from 125 in June 1980 to 136 in June 1986. Most of this increase can be attributed to the growing price difference between Yellowknife and Edmonton for housing, and for shelter specifically. When housing items are removed from the index calculation, the average price difference between the two cities increases from 21 percent in 1980 to 24 percent in 1986. When just the shelter component of housing is removed, the resulting spatial price index is 120 in 1980 and 123 in 1986.

Table 2. SPATIAL PRICE INDEXES, by Major Component
Yellowknife, June 1980 to 1986

	1986	1985	1984 (1)	1984 (2)	1983	1982	1981	1980
				(Edmonton = 100)				
All Items	135.5	135.6	134.5	132.8	130.2	128.1	124.7	125.3
Food	128.2	127.8	125.9	124.7	125.1	125.0	120.3	121.3
Housing	161.4	165.3	159.1	162.0	154.4	150.5	139.8	137.8
Shelter	190.5	196.1	186.3	187.9	176.9	169.1	148.8	153.4
Clothing	120.0	119.5	120.8	118.4	117.4	115.3	110.3	114.0
Transportation	126.4	121.7	126.5	122.8	119.7	116.7	119.3	123.4
Health & Personal Care	126.8	125.2	125.0	129.9	124.4	118.0	113.8	115.7
Recreation, Reading & Education	123.8	121.3	121.0	115.3	115.5	115.7	115.2	113.9
Tobacco and Alcohol	109.8	111.9	112.3	112.7	116.1	119.4	135.6	131.6
All Items Excluding Housing	124.1	122.4	123.3	121.2	120.3	119.2	118.9	120.5
All Items Excluding Shelter	122.5	121.2	121.9	121.3	120.3	119.6	120.1	120.1

Table 3. WEIGHTS, by Major Component
Yellowknife, June 1980 to 1986

	1986	1985	1984 (1)	1984 (2)	1983	1982	1981	1980
				(%)				
All Items	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Food	20.6	20.4	20.4	21.3	21.0	21.8	24.0	24.4
Housing	30.5	30.8	31.3	28.5	29.0	28.6	27.9	28.0
Shelter	19.0	19.3	19.6	17.2	17.7	17.2	16.1	15.7
Clothing	9.1	9.2	9.4	9.9	9.9	10.2	10.0	10.7
Transportation	18.5	18.9	18.4	20.1	20.2	20.2	19.2	18.8
Health & Personal Care	4.1	4.0	4.1	3.8	3.7	3.7	4.2	4.3
Recreation, Reading & Education	10.1	10.1	10.1	9.8	9.8	9.7	8.6	7.8
Tobacco and Alcohol	7.0	6.6	6.3	6.7	6.3	5.8	5.9	6.2
All Items Excluding Housing	69.5	69.2	68.7	71.5	71.0	71.4	72.1	72.1
All Items Excluding Shelter	81.0	80.7	80.4	82.8	82.3	82.8	83.9	84.3

Notes: 1984(1), 1985 and 1986 weights based on 1982 Family Expenditure Survey.
1981,1982,1983 and 1984(2) weights based on 1978 Family Expenditure Survey.
1980 weights based on 1974 Family Expenditure Survey.
Price indexes for 1983 and subsequent years are based on estimation procedures.

APPENDIX A

METHODOLOGY

METHODOLOGY

1. Introduction

For June 1980, 1981 and 1982 spatial price indexes comparing Edmonton and Yellowknife average retail prices were calculated directly from survey information collected in both centres. Since June 1983, the Yellowknife-Edmonton spatial price indexes are estimated from the June 1982 spatial price index and subsequent temporal price changes as measured by the Consumer Price Indexes for Edmonton and Yellowknife. Spatial price information based on this procedure includes an overall price index as well as indexes for broad categories of consumer items. Price indexes showing item level detail were calculated during the estimation procedure, but are not included in this report.

2. Method

The June 1982 Yellowknife-Edmonton spatial price index was calculated by summing the product $w_{E82} \cdot r_{YE82}$ for each item. Here the w_{E82} are June 1982 CPI expenditure weights for Edmonton and the r_{YE82} are corresponding item-level spatial price indexes calculated from Yellowknife and Edmonton survey data.

For June 1986, the overall spatial price index was calculated by summing the product $w_{E86} \cdot r_{YE86}$, where the w_{E86} are June 1986 CPI expenditure weights for Edmonton and the r_{YE86} are the corresponding item-level spatial price indexes. In the absence of survey information, the price index for each item was estimated. The procedure for estimating these spatial price indexes is as follows:

$$r_{YE86} = r_{YE82} \cdot \frac{r_{Y86/82}}{r_{E86/82}}$$

where $r_{Y86/82}$ is the temporal price index for the item in Yellowknife for June 1986 compared to June 1982, and $r_{E86/82}$ is the corresponding temporal price index for Edmonton.

3. Example

The procedure for estimating a spatial price index based upon temporal price movements can be illustrated by means of an example, using hypothetical data. In this example, the calculation of a Yellowknife-Edmonton spatial price index for canned vegetables is outlined.

Hypothetical data comparing Yellowknife and Edmonton prices for canned vegetables in June 1982 are provided in the following table:

	Spatial Price Index (Edmonton = 100)	Expenditure Weight
Canned vegetables	121.0	1.000
Beans	120.3	0.400
Peas	123.5	0.300
Carrots	119.4	0.300

Based on this table, the June 1982 spatial price index for canned vegetables in Yellowknife would be 121.0. This index is based on expenditure weights for canned beans, peas and carrots, and the prices observed for these items in Yellowknife and Edmonton.

Suppose price increases for canned vegetables over the period June 1982 to June 1986 yield the following temporal price indexes for Yellowknife and Edmonton:

	Temporal Price Index	
	Yellowknife	Edmonton
	(June 1982 = 100)	
Beans	110.3	109.6
Peas	108.2	110.1
Carrots	112.7	110.2

As outlined in section 2, this temporal price information can be used to estimate June 1986 Yellowknife-Edmonton spatial price indexes for each item using the formula:

$$r_{YE86} = r_{YE82} \cdot \frac{r_{Y86/82}}{r_{E86/82}}$$

The calculated results of this procedure are:

(i) canned beans - $120.3 \times \frac{110.3}{109.6} = 121.1$

(ii) canned peas - $123.5 \times \frac{108.2}{110.1} = 121.4$

(iii) canned carrots - $119.4 \times \frac{112.7}{110.2} = 122.1$

June 1986 expenditure weights calculated for Edmonton, combined with estimated spatial price indexes for each item, yield the Yellowknife-Edmonton spatial price information for June 1986 outlined in the following table:

	Spatial Price Index (Edmonton = 100)	Expenditure Weight
Canned vegetables	121.5	1.000
Beans	121.1	0.399
Peas	121.4	0.300
Carrots	122.1	0.301

For June 1986, the estimated Yellowknife-Edmonton spatial price index for canned vegetables would be 121.5, compared to 121.0 for June 1982.

APPENDIX B

ITEMS INCLUDED

ITEMS INCLUDED

FOOD ITEMS

FOOD PURCHASED FROM STORES:

Meat, Poultry and Fish

Beef Loin Cuts
Beef Hip Cuts
Beef Rib Cuts
Beef Shoulder Cuts
Stewing Beef
Ground Beef
Beef Sausage

Bacon
Smoked Ham
Pork Loin Cuts
Pork Shoulder Cuts
Pork Sausage
Spareribs

Veal
Lamb
Liver
Weiners
Canned Meats
Luncheon Meats

Chicken
Turkey
Frozen Fish
Canned Salmon
Canned Tuna
Canned Seafood

Dairy Products and Eggs

Fluid Whole Milk
Low Fat Milk
Butter
Cheddar Cheese

Processed Cheese
Evaporated Milk
Ice Cream
Cottage Cheese

Large Eggs

Cereal and Bakery Products

Rice
Flour
Pasta Products
Breakfast Cereals
Cake Mixes

Bread
Crackers
Doughnuts
Rolls, buns, muffins

Fruit and Vegetables

Apples
Bananas
Grapefruit
Oranges
Pears
Lemons

Cabbage
Carrots
Celery
Green Peppers
Cucumbers
Lettuce
Onions
Potatoes
Tomatoes
Turnips

Canned Apple Juice
Canned Orange Juice
Canned Peaches
Canned Pears
Canned Fruit Cocktail
Canned Pineapple
Frozen Strawberries
Raisins

Frozen Green Beans
Frozen Corn
Frozen Peas
Frozen French Fries
Canned Baked Beans
Canned Waxed Beans
Canned Corn
Canned Peas
Canned Tomatoes
Canned Tomato Juice

Fats and Oils

Margarine
Shortening
Salad Oil
Salad Dressing

Prepared Main Dishes

Meat Dinners
Pasta Based Dishes
Frozen Meat/Poultry Pies

Sugar and Confections

Sugar
Confections

Coffee and Tea

Regular Coffee
Instant Coffee
Tea Bags

Other Foods

Pickles
Catsup and Sauces
Honey and Syrup
Jam
Seasonings
Canned Soup

Baby Food
Peanut Butter
Dessert Powder
Fruit Drink Crystals
Snack Food
Soft Drinks

FOOD PURCHASED FROM RESTAURANTS:

Breakfast
Lunch
Dinner
Snacks
Take-out orders

HOUSING ITEMS

SHELTER:

Rented Accommodation

Rent
Tenants' Repairs
Tenants' Insurance

Other Accommodation

Hotels
Motels

Owned Accommodation

Property Taxes
Homeowners' Insurance
Homeowners' Repairs

Water, Fuel and Electricity

Water
Fuel Oil and Gas
Electricity

HOUSEHOLD OPERATION:

Child Care

Day Care
Babysitting

Domestic Help

Domestic Help

Detergent and Soap

Detergent Powder
Liquid Detergent

Household Chemicals

Laundry Bleach
Fabric Softener

Cleaning and Polishing Products

Floor and Furniture Wax
Scouring Powder

Communications

Local Telephone
Long Distance Telephone
Postage

Pet Expenses

Pet Food
Veterinary Services

Paper, Plastic and Foil Products

Facial Tissue
Toilet Paper
Kitchen Paper Products
Plastic Garbage Bags
Plastic Food Wrap
Foil Wrap
Paper Towels

Horticultural Goods

Nursery Stock
Flowers

Other Household Supplies

Light Bulbs
Dry Cell Batteries

HOUSEHOLD FURNISHINGS AND EQUIPMENT:

Furniture

Bedroom Suites
Living Room Tables
Dining Room Sets
Dinette Suites
Sofas
Dual Purpose Sofas
Mattresses

Floor Coverings

Carpeting
Linoleum

Tableware

Flatware
Dinnerware

Household Textiles

Bed Sheets
Blankets
Towels
Ready Made Drapes/Curtains

Other Household Equipment

Calculators

Household Appliances

Vacuum Cleaners
Dishwashers
Refrigerators
Ranges
Washers
Dryers
Sewing Machines
Electric Fry Pan
Food Mixers
Irons

Kitchen Utensils

Metal Cookware
Glass Cookware

Lawn and Garden Equipment

Power Lawn Mowers
Garden Tools
Hand Tools
Power Tools
Household Tools

Service Repairs

Repairs

CLOTHING ITEMS

WOMEN'S WEAR:

Women's Coats

Leather Coats
All Weather Coats
Jackets and Blazers

Women's Sportswear

Pants
Skirts
Sweaters
Blouses
Bathing Suits

Women's Active Sportswear

Beachwear

Women's Accessories

Gloves
Handbags

Women's Jewellery

Watches
Jewellery

Women's Dresses

Dresses
Suits

Foundation Garments, Lingerie and Sleepwear

Panty Hose
Slips
Briefs
Nightgowns
Robes
Brassieres

Women's Footwear

Dress Shoes
Casual Shoes
Sports Shoes

GIRLS' WEAR:

Cloth Coats
All Weather Coats
Dresses
Pants
Sweaters
Jackets

Socks
Underwear
Pyjamas
Street Shoes
Athletic Shoes

MEN'S WEAR:

Men's Coats

- Overcoats
- Parkas
- Light Jackets

Men's Pants

- Dress Pants
- Casual Pants
- Jeans

Men's Active Sportswear

- Bathing Suits

Men's Accessories

- Gloves
- Belts and Wallets

Men's Jewellery

- Watches

Men's Suits

- Wool Suits
- Sport Jackets

Furnishings and Underwear

- Dress Shirts
- Sports Shirts
- Sweaters
- Sport Socks
- Underwear
- Pyjamas

Men's Footwear

- Hiking Boots
- Casual Shoes
- Athletic Shoes
- Dress Shoes

BOYS' WEAR:

- Ski Jackets
- Lighweight Jackets
- Sports Jackets
- Pants
- Jeans
- Woven Sports Shirts
- Knitted Sports Shirts
- Underwear
- Casual Shoes
- Athletic Shoes
- Snowboots/Winter Boots

INFANTS' WEAR:

- Disposable Diapers
- Sleepers
- Overalls

CLOTHING MATERIAL:

Cotton Print Material
Gabardine Material
Linings
Notions
Yarn

CLOTHING SERVICES:

Laundry Sent Out
Dry Cleaning
Coin Laundry
Shoe Repair

TRANSPORTATION ITEMS

PRIVATE TRANSPORTATION:

Auto and Truck Purchase

Automobiles
Trucks

Rented Vehicles

Car Rental

Auto and Truck Operation

Gasoline
Tires
Batteries
Maintenance and Repairs
Repair Parts
Insurance
Registration Fees
Parking

PUBLIC TRANSPORTATION:

Bus Fares
Taxi Service
Air Fares

HEALTH & PERSONAL CARE ITEMS

HEALTH CARE:

Eye Glasses
Dental Work
Denture Work

Prescribed Medicine
Non-prescribed Medicine
Medical Supplies

PERSONAL CARE:

Men's Hairstyling
Women's Hairstyling
Hair Preparation
Shampoos
Home Permanents and Colour
Hair Dryers
Curling Irons

Colognes
Cosmetics
Lotions
Toothpaste
Deodorants
Shaving Cream
Soap
Razor Blades
Toothbrushes
Sanitary Supplies

RECREATION, READING & EDUCATION ITEMS

RECREATION:

Home Entertainment

- Stereo Components
- Colour Televisions
- Phonograph Records
- TV Repairs
- Cablevision

Recreational Services

- Movie Admissions
- Bowling
- Skating Admission
- Package Trips
- Other Expenses

Recreation Epuipment

- Camping Equipment
- Skis
- Tennis Racquets
- Fishing Rods and Reels
- Toys
- Games
- Cameras
- Films

Recreation Vehicles and Outboard Motors

- Bicycles
- Boats
- Outboard Motors
- Travel Trailers
- Motor Cycles
- Mixed Gas

READING:

- Newspapers
- Magazines
- Paperbacks

EDUCATION:

- Tuition Fees
- Music Lessons

TOBACCO AND ALCOHOL ITEMS

TOBACCO:

Cigarettes	Cigars

ALCOHOL:

Beer from Stores	Beer from Licenced Premises
Wine from Stores	Wine from Licenced Premises
Liquor from Stores	Liquor from Licenced Premises